

## OCEAN GALES AND STORMS, MAY 1940

Vesse	Voyage		Position at time of lowest barometer		Gale began May	Time of lowest barometer, May	Gale ended May	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From--	To--	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Bibb, U. S. C. G.	Horta	Station No. 2	40 00 N.	40 48 W.	2	3p, 2	2	1,003.4	SSW	WSW, 8	NW	SW, 9	SW-WNW.
Breedijk, Du. S. S.	Rotterdam	New York	48 36 N.	26 30 W.	3	10a, 3	4	997.6	N	N, 6	NNW	N, 8	
Gulfbawk, Am. M. S.	do	do	35 00 N.	71 45 W.	3	12p, 3	4	1,010.2	S	WSW, 8	W	WSW, 8	WSW-NW.
Blommersdijk, Du. S. S.	Rotterdam	do	48 03 N.	25 08 W.	4	12m, 4	5	999.5	NE	ESE, 5	NE	NE, 10	SE-NE.
Leto, Du. S. S.	do	Norfolk	38 12 N.	68 24 W.	4	8a, 5	4	1,009.1	S	SW, 4	S	S, 8	
Elizabeth van Belgie, Belg. S. S.	Antwerp	Charleston	38 42 N.	24 36 W.	5	4a, 6	6	1,004.0	SW	S, 6	S	SW, 8	SSW-SSE.
Bibb, U. S. C. G.	Station No. 2	Morehead City, N. C.	37 24 N.	60 06 W.	5	5a, 6	5	1,019.0	SSE	WSW, 6	S	S, 8	S-WSW.
Monbaldo, Ital. S. S.	Cadiz	New Orleans	34 54 N.	52 24 W.	9	11p, 9	9	998.6	S	S, 8	SW	S, 8	
J. A. Moffett, Jr., Am. M. S.	Cartagena	Montreal	39 25 N.	63 44 W.	12	9a, 12	12	1,001.0	NE	SSE, 4	E	NE, 8	NE-S.
Artigas, Am. S. S.	Poti, U. S. S. R.	Baltimore	35 05 N.	56 00 W.	13	3p, 13	13	1,010.5	SE	SSE, 9	WNW	SSE, 9	SSE-SW.
Extavia, Am. S. S.	Lisbon	New York	37 12 N.	53 21 W.	13	6p, 13	13	1,016.3	S	S, 8	S	S, 8	S-W.
Pennland, Du. S. S.	Antwerp	do	41 08 N.	54 42 W.	13	11p, 13	14	1,012.2	S	SSW, 9	NW	SSW, 9	
Kainalu, Am. S. S.	Gibraltar	do	40 06 N.	52 48 W.	13	1a, 14	14	1,015.9	SSE	SW, 7	W	S, 8	S-W.
Ingham, U. S. C. G.	On station No. 1	do	39 24 N.	59 12 W.	14	8p, 14	15	1,018.6	S	SW, 9	SW	SW, 9	
Chelan, U. S. C. G.	On ice patrol	Out from Boston	48 24 N.	48 42 W.	21	3p, 20	23	1,000.7	N	SW, 4	NNW	NNW, 9	SW-NW.
Good Gulf, Belg. M. S.	New York	Las Piedras, Venezuela	30 12 N.	71 00 W.	20	6a, 21	21	1,002.7	E	SE, 8	SSW	SE, 8	SE-SSE.
Darien, Pan. S. S.	St. John, N. B.	Kingston	31 22 N.	71 00 W.	21	8p, 21	22	998.3	E	SE, 6	W	SW, 8	E-S.
Lubrafol, Belg. M. S.	New York	Aruba	32 21 N.	71 52 W.	21	12p, 21	22	995.6	E	E, 5	W	E, 8	E-S-W.
Amapala, Hond. S. S.	Ceiba	New York	36 50 N.	74 10 W.	22	12p, 22	23	1,004.7	N	NNW, 7	N	NNW, 8	NNW-N.
Gulfpoint, Am. S. S.	Port Arthur	Providence	37 47 N.	74 17 W.	22	2a, 23	23	1,005.1	N	NNE, 7	NNE	NNE, 8	N-NNE.
Hamilton, U. S. C. G.	On station No. 2	Out from Norfolk	40 30 N.	44 00 W.	21	1p, 23	23	1,007.1	NNW	NW, 8	NW	NNW, 8	WNW-NW.
Exlona, Am. S. S.	Cadiz	New York	40 30 N.	28 54 W.	23	4a, 24	25	993.6	WSW	W, 2	NNW	WSW, 8	W-NW.
Mormactide, Am. S. S.	Galveston	Quebec	36 40 N.	72 48 W.	23	2p, 24	24	1,004.7	NNW	N, 5	N	NNW, 8	N-NW.
Pontchartrain, U. S. C. G.	On station No. 1	Out from New York	39 00 N.	59 00 W.	26	2a, 26	26	1,022.0	SE	SE, 7	SE	SE, 8	
Spencer, U. S. C. G.	On station No. 2	do	40 12 N.	43 36 W.	28	3p, 28	28	1,014.6	SSW	SW, 6	SSW	SW, 8	SSW-WSW.
Chelan, U. S. C. G.	Ice patrol	Boston	47 24 N.	51 48 W.	31	3a, 30	31	1,008.8	SW	SW, 4	SW	SW, 8	
NORTH PACIFIC OCEAN													
Meigs, U. S. A. T.	Manila	San Francisco	41 45 N.	122 40 W.	1	10a, 1	1	997.6	SSW	SSE, 9	SW	SW, 9	
Mapele, Am. S. S.	Columbia River	Honolulu	41 28 N.	132 54 W.	1	4p, 3	4	999.0	SSW	NNW, 6	NNW	SSE, 8	
Swiftsure Bank Lightship, U. S.	On station	do	48 33 N.	125 00 W.	1	8p, 1	2	1,001.0	SE	SE, 7	SE	SE, 8	
Huguenot, Am. S. S.	Portland, Oreg.	Long Beach	45 36 N.	124 25 W.	4	8a, 4	4	1,002.4	S	S, 7	SW	SW, 8	
Yaka, Am. S. S.	Manila	San Francisco	38 30 N.	152 54 W.	10	2p, 4	10	1,005.8	NW	SW, 5	NNW	SSW, 8	
Bridge, U. S. S.	San Diego	do	35 24 N.	121 12 W.	10	3p, 10	10	1,011.5	NW	NW, 8	NNW	NW, 8	W-NW.
Discoverer, U. S. C. & G. S.	Surveying near Unimak Island	do	55 18 N.	162 18 W.	10	4a, 11	11	1,009.5	NNW	N, 8	N	NNW, 11	
Bralanta, Nor. M. S.	Yokohama	Los Angeles	38 30 N.	142 30 W.	12	2p, 12	12	988.2		SSE, 8		SSE, 8	
Bahrein, Pan. S. S.	Dairen	do	42 10 N.	139 12 W.	12	3a, 13	13	984.4	ESE	S, 10	WSW	SSE, 12	SE-SW.
City of Alma, Am. S. S.	Victoria, B. C.	Honolulu	42 42 N.	134 54 W.	12	8a, 13	13	1,005.8	S	SE, 9	WSW	SE, 9	SE-SW.
Santa Maria, Pan. S. S.	Los Angeles	Loco, B. C.	38 50 N.	123 42 W.	15	4p, 15	16	1,013.9	NW	WNW, 7	NW	NW, 8	NW-WNW.
Discoverer, U. S. C. & G. S.	Surveying near Alaska Peninsula	do	55 00 N.	161 54 W.	21	2a, 21	22	1,001.7	NNW	NNW, 5	NNW	NNW, 10	None.
Huguenot, Am. S. S.	Los Angeles	Seattle	40 15 N.	124 30 W.	25	12m, 26	26	1,013.5	NW	NW, 8	NW	NW, 8	None.
Toa Maru, Jap. M. S.	Osaka	Los Angeles	42 34 N.	153 59 E.	27	10p, 26	29	996.3	NW	N, 7	W	NNW, 8	ENE-NW.
San Luis Maru, Jap. M. S.	Yokohama	do	45 18 N.	175 12 W.	30	12p, 30	31	976.6		ESE, 3	WNW	WNW, 9	
Toa Maru, Jap. M. S.	Osaka	do	46 56 N.	163 27 W.	30	12p, 30	31	990.0	SE	S, 6	W	SW, 8	ESE-SSW.
City of Los Angeles, Am. S. S.	Yokohama	San Francisco	48 00 N.	161 00 W.	30	6a, 31	31	983.7	ESE	SW, 7	SW	WSW, 10	SSW-SW.

<sup>1</sup> Position approximate.<sup>2</sup> Barometer uncorrected.<sup>3</sup> June.

## NORTH PACIFIC OCEAN, MAY 1940

By WILLIS E. HURD

*Atmospheric pressure.*—In May the change from winter to spring conditions of pressure was rapid. The Aleutian low was abnormally deep in April 1940, but in May it became practically normal, with a long trough of low pressure, approximately 1,009 millibars (29.80 inches), extending from the Alaska Peninsula westward across the Aleutians.

In middle latitudes the North Pacific anticyclone was well developed and of broad extent. On several days it extended in middle longitudes from the upper Tropics northward to the Aleutians. On the average, its eastern boundary touched the American coast between latitudes 40° and 55° N., while its western boundary, in lower latitudes, extended far into east longitudes. At Midway Island the average pressure, 1,022.2 millibars (30.18 inches), was 4.6 millibars (0.13 inch) above the normal of the month.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, May 1940, at selected stations

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	Millibars	Millibars		Millibars	
Point Barrow <sup>1</sup>	1,008.4	-2.1	1,027	7, 8	991	29
Dutch Harbor	1,010.7	-0.5	1,029	7	996	29
St. Paul	1,009.8	-0.7	1,024	7	991	18
Kodiak	1,015.2	-0.4	1,025	6	988	2
Juneau	1,018.0	+1.7	1,028	16	1,002	1
Tatoosh Island	1,014.9	-0.7	1,022	7	1,008	20
San Francisco	1,011.0	+0.2	1,014	6, 7	1,009	20, 21, 29
Mazatlan	1,015.9	-1.7	1,020	2	1,010	11
Honolulu	1,022.2	+4.6	1,026	6, 24	1,015	15
Midway Island	1,012.0	+0.1	1,016	28	1,010	5, 16, 21-23
Guam	1,009.4	+1.3	1,013	11	1,005	22
Manila	1,008.8	+0.3	1,014	18	1,003	31
Hong Kong	1,011.1	+1.3	1,017	2	1,004	31
Naha	1,013.4	+0.5	1,020	3	1,006	30
Titijima	1,008.8	-1.2	1,028	17	978	10
Petropavlovsk						

<sup>1</sup> Data lacking.

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

*Extratropical cyclones and gales.*—Most cyclonic disturbances of the month moved in the higher latitudes; and over the western two-thirds of the ocean no gales were reported by ships to the southward of the 40th parallel. Over the eastern third, a few fresh gales occurred between latitudes 35° and 40° N., in connection with cyclones centered well to the northward on the 1st, 4th, and 12th. The stormy weather of the month occurred mainly to the eastward of the 180th meridian; west of that meridian the only wind of force as high as 8 reported was experienced near latitude 43° N., 154° E., on the 27th.

At the beginning of May a moderate cyclone lay to the westward of Washington and Oregon from the 1st to the 4th, and caused strong winds to fresh southerly gales, particularly along the coast. Much farther westward, on the 4th to 6th, a further moderate cyclone lay over the northern routes to the southeastward of the Aleutian Islands, and caused widely scattered winds of forces 7 to 8 within the region 38° to 47° N., 150° to 165° W.

Late on the 12th and early on the 13th the locally most violent storm of the month along the main lines of travel was centered in the vicinity of 45° N., 140° W. At about 2 a. m. of the 13th the Panamanian steamer *Bahrein* encountered intense squalls of rain and wind, the highest velocity attaining full hurricane force from the south-southeast. At 3 a. m. the wind had lessened to force 10 from the south, with lowest barometer 984.4 millibars (29.07 inches), in 42°10' N., 139°12' W. At 8 a. m. of the same date the American steamer *City of Alma*, near 43° N., 135° W., reported a southeast gale of force 9, lowest barometer 1,005.8 millibars (29.70 inches).

In higher latitudes of the Pacific, the U. S. Coast and Geodetic Survey steamer *Discoverer*, near Unimak Island, off the Alaska Peninsula, encountered a north-northwest gale of force 11 on the 10th, and another of force 10 from the same direction on the 22d. Both occurrences were evidently local in character.

From May 27 to 31 a cyclone from the vicinity of the Kuril Islands crossed the central Aleutian chain, and at the close of the month lay south and southwest of the Alaska Peninsula. This storm was particularly notable on the 30th and 31st. On the 30th because on that date the Japanese motorship *San Luis Maru* reported what is probably the lowest barometer reading of the month in the North Pacific, 976.6 millibars (28.84 inches, uncorrected), near 45° N., 175° W.; on the 31st, because of the storm activity. Several eastbound vessels had westerly gales between latitudes 45° and 50° N., longitudes 155° and 170° W., of which the strongest, of force 10, was reported by the American steamer *City of Los Angeles*, near 48° N., 157° to 158° W.

Near the California coast northwesterly gales of force 8 were reported by ships on the 10th, 15th, 16th, 25th, and 26th, along the eastern slope of the oceanic high.

*Fog.*—In northwestern waters the fog conditions usual to late spring made their appearance this month. Along the upper steamship routes between longitude 175° W., and northern Japan fog was observed on 3 to 6 or more days in each five-degree square. Only scattered fogs occurred elsewhere, except along the American coast. Two days with fog were reported off Washington; 3, off Oregon; 18, off California; and 4, off Lower California.

## CLIMATOLOGICAL TABLES

### CONDENSED CLIMATOLOGICAL SUMMARY

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

TABLE 1.—Condensed climatological summary of temperature and precipitation by sections, May 1940

[For description of tables and charts, see REVIEW, January, pp. 32 and 38]

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
	° F.	° F.		° F.			° F.		In.	In.		In.		In.
Alabama.....	69.0	-2.4	2 stations.....	97	22	2 stations.....	34	4	3.45	-0.67	Melvin.....	8.14	Fairhope.....	0.53
Arizona.....	69.4	+3.4	Gila Bend.....	110	14	Alpine.....	22	5	.33	+ .01	Alpine.....	1.56	9 stations.....	.00
Arkansas.....	66.6	-2.5	England.....	96	5	2 station.....	33	2	3.62	-1.33	Grannis.....	11.51	Lead Hill.....	.63
California.....	64.0	+2.6	2 stations.....	111	13	Soda Springs.....	12	5	.63	- .31	Upper Mattole.....	5.21	70 stations.....	.00
Colorado.....	55.4	+3.0	Sedgwick.....	100	31	Hermit.....	15	1	1.74	- .14	Monument.....	4.63	3 stations.....	.00
Florida.....	72.9	-2.6	Quincy.....	99	22	3 stations.....	38	13	1.99	-1.97	Miami.....	11.11	Inverness.....	.20
Georgia.....	69.3	-2.2	Alapaha.....	98	22	Blairsville.....	29	5	2.14	-1.29	Quitman.....	6.20	Savannah Beach.....	.67
Idaho.....	57.0	+3.9	Riggins.....	100	10	Pelton's Ranch.....	12	7	.55	-1.07	Pierce.....	3.17	7 stations.....	.00
Illinois.....	60.0	-2.7	2 stations.....	92	16	3 stations.....	27	4	3.24	- .78	Cicero.....	6.24	U.S. Dam 21 (Quincy).....	.94
Indiana.....	59.0	-3.2	Shoals.....	97	8	Marengo.....	25	4	4.14	+ .15	Wheatfield.....	7.82	Evans Landing.....	1.80
Iowa.....	58.4	-1.7	4 stations.....	96	13	3 stations.....	26	11	2.07	-1.96	Cedar Falls.....	3.86	Inwood.....	.16
Kansas.....	63.9	.0	Medicine Lodge.....	102	5	Atwood.....	30	15	3.76	- .07	Minneola.....	8.09	Hanover.....	1.11
Kentucky.....	61.8	-3.6	Pikeville.....	94	17	Lynch (near).....	26	4	3.50	- .47	Flemingsburg.....	6.10	Pikeville.....	1.71
Louisiana.....	71.9	-1.8	Winnfield.....	94	120	Belle Chasse.....	45	13	1.89	-2.64	Monroe.....	5.45	Gueydan (near).....	.00
Maryland-Delaware.....	62.0	- .7	Dunkalk, Md.....	93	14	Oakland, Md.....	23	12	4.55	+1.06	Emmitsburg, Md.....	8.94	Delaware Breakwater, Del.....	2.63

<sup>1</sup> Other dates also.